

ExpressCard with On-Card Flash Memory with Shared Flash-Control Bus but Separate Ready Lines

Abstract

An ExpressCard contains flash memory. The ExpressCard has an ExpressCard connector that plugs into a host, such as a personal computer, digital camera, or personal digital assistant (PDA). A controller chip on the ExpressCard uses a pair of differential Universal–Serial–Bus (USB) data lines in the connector to communicate with the USB host, or can use PCI Express, Firewire, or other protocols. One or more flash–memory chips on the ExpressCard are controlled by a flash–memory controller in the controller chip. Two or more channels of a flash bus have a shared control bus but separate ready lines. The separate ready lines allow flash–memory chips in the two channels to finish operations at different times.